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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,744

11/28/2001

Ryo Yamasaki

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04/01/2009

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EXAMINER

AGGARWAL, YOGESH K

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

04/01/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/994,744	<b>Applicant(s)</b> YAMASAKI, RYO	
	<b>Examiner</b> YOGESH K. AGGARWAL	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 2,3 and 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/10/2009 has been entered.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leitz (US Patent # 4,071,297) in view of Suzuki (US Patent # 6,426,773).

[Claim 1]

Leitz teaches an image pickup apparatus (figure 7), comprising: a plurality of pixels (5r, 5r', 5g and 5g')

wherein each pixel includes a first sensitive area and a second sensitive area  
(photoelectric portions 5g and 5g' are considered one pixel pair and photoelectric portions 5r and 5r' is considered another pixel pair, col. 4 lines 40-44),

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wherein the first and second sensitive areas of a pixel receive light flux respectively corresponding to different areas of an exit pupil of an imaging optical system (1, See figure 7)

wherein each pixel includes two photoelectric conversion portions (e.g. 5g and 5g') formed therein based on the first and second sensitive areas of the pixel,

an output unit (9' and 9'') that receives outputs a first electric signal and a second electric signal from each of the plurality of pixels and that detects and outputs a phase difference between corresponding first electric signal and the second electric signals from each of the plurality of pixels (col. 4 lines 53-60),

wherein the first and second sensitive areas of each of the plurality of pixels are arranged so that corresponding first and second electric signals, received by the output unit, each includes signals generated in the first and second sensitive areas of a corresponding one of the plurality of pixels (col. 4 lines 44-col. 5 line 10).

Leitz fails to teach wherein a sensitivity distribution of the first sensitive area and a sensitivity distribution of the second sensitive area partially overlap in an area interposed between the two photoelectric conversions of the pixel. However Suzuki teaches pixel array as shown in figure 7 wherein color information for G pixel i.e. color image information for G (green) exists in all pixel positions (col. 9 lines 45-48). Suzuki further teaches in figure 11 that sensitivity distributions of blue, green and red pixels partially overlap (col. 11 lines 27-35). Therefore the sensitivity distribution of adjacent pixels in an area interposed between the two photoelectric portions of the pixels will overlap since as shown in figure 7, green will overlap with green etc.

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Therefore taking the combined teachings of Leitz and Suzuki, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have wherein a sensitivity distribution of the first sensitive area and a sensitivity distribution of the second sensitive area partially overlap in an area interposed between the two photoelectric conversions of the pixel in order to have a high quality image even if the nonuniformity in exposure when a plurality of color image information is obtained (See Suzuki, col. 5 lines 43-48).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leitz (US Patent # 4,071,297), Suzuki (US Patent # 6,426,773) and in further view of Wu et al. (US Patent # 5,760,852).

[Claim 4]

Leitz in view of Suzuki teach the limitations of claim 1 but fails to teach wherein the first and sensitivity areas are formed on the basis of an F-number of the imaging optical system of a focus detection mode. However Wu et al. teaches that sensitivity of the CCD array (It is noted that the first and second sensitive areas of a pixel unit are included in a CCD array) can be adjusted by controlling electronic gain and the f-number of the objective lens (col. 7 lines 22-24). A focus detection mode would be inherently taught. Therefore taking the combined teachings of Leitz, Suzuki and Wu, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to have sensitivity region formed on the basis of an F-number of the imaging optical system of a focus detection mode in order to have a device that can be used in a wide variety of lighting conditions.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogesh K Aggarwal/  
Primary Examiner, Art Unit 2622